GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, NOVEMBER 16, 1892.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—Landscape-art as a Profession 541
A Museum Specimen of Sequoia gigantea. (With figures.) 541
Public Forests and Public Parks 542
Notes of a Summer Journey in Europe.—XVII ..... *J. G. Jack.* 543
Notes from West Virginia ..... *Mrs. Danske Dandridge.* 544
PLANT NOTES:—Dendrobium formosum giganteum ..... *O.* 544
FOREIGN CORRESPONDENCE:—London Letter ..... *W. Watson.* 545
CULTURAL DEPARTMENT:—The Grape Season ..... *E. Williams.* 546
Lettuce as a Greenhouse Crop ..... *W. S. Turner.* 548
Potting Soils ..... *O. O.* 549
CORRESPONDENCE:—Echoes from Madison Square Garden ..... *J. N. G.* 549
A Rare Plantain ..... *H. P. Keyes.* 550
EXHIBITIONS:—Boston Chrysanthemum Exhibition 550
Chrysanthemums at Philadelphia 551
NOTES 552
ILLUSTRATIONS:—Felling a Sequoia gigantea in Fresno County, Cal., Fig. 92 546
Stump of Sequoia gigantea, on land of the King's River Lumber Company, Fig. 93 547

Landscape-art as a Profession.

FEW weeks pass in which we do not receive a letter or two inquiring what inducements are offered by the profession of landscape-gardening to a young man who is looking for an agreeable and fairly remunerative calling. The inquirer usually seems to have an idea that this is an art in which one can readily become a master—indeed, that it is an art in which any one who is endowed with what he considers a "love for nature" is already well equipped. Of course, these people have a confused idea of what they mean by landscape-gardening, which may stand for one of the highest of the arts of design, or it may mean something which is purely handicraft. One of the leading daily journals in New England, for example, not long ago spoke of the planting of some Petunias and Geraniums about the pedestal of a statue in Boston as a specimen of landscape-art. Last week we tried to show that an artist was needed whose true province was to comprehend the work of the architect and the gardener and to arrange the building and its surroundings so as to form a landscape with unity of design. Successful work in this field certainly demands taste and training of the highest kind. There may be gardeners who are artists in their line, and architects, too, who are artists, but, after all, there is a necessity to cultivate the conception of landscape as composed of the harmonized works of these two kinds of artists. Whoever harmonizes them successfully, whether he calls himself a landscape-architect or not, is an artist of the first rank.

We can say, however, to all inquirers that there is little demand now for specialists in this field, for few people have yet realized its possibilities. It is true that there is a dawning conception of the truth in this matter, and the Columbian Fair grounds will, no doubt, prove an influence of surpassing importance in showing how an artist, working with and through architects, could make possible such a creation as the White City. When a few more men like Mr. Olmsted, who is neither an architect nor a gardener, technically, shall have proved to architects and to gardeners, as well as to the people generally, the supreme importance of general design in the arrangement of buildings and grounds, there will arise a call for designers in this field. In very few of the professions are there many persons who excel in design, and, perhaps, there are not more than half a dozen men in the world who have achieved greatness in this field of landscape-art. To be eminent, much study must be added to original natural ability, for the artist must have enough knowledge of the principles of engineering and architecture and gardening to know their possibilities and to work through experts in them. And yet it is probable that as the call arises this profession will be crowded as full as any of the others. Most of these practitioners will, probably, do very indifferent work, but then there are not a few sculptors and landscape-painters and architects who do indifferent work, too.

This somewhat exalted and yet, as we believe, fundamentally true conception of the functions of the landscape-architect ought not to weaken the purpose of any one who is preparing to enter the field of what is often called landscape-gardening. If the day should ever come when designers such as we have described will always be employed in works of importance, there would still be as much need of an artistic gardener as an architect. Such a man would always be needed to carry out the details of any great design and realize its suggested features, and even now it is probable that a man who is possessed of a good knowledge of plants and some artistic training—the more he has the better—might be able in almost any suburban neighborhood to work up a practice in various subordinate branches of garden design and render good service to owners of small places. The call for such work is proved by the fact that planters are constantly asking for advice and suggestions, as every nurseryman knows, when he receives an order for plants. The ideal landscape-gardener, however, is free from such business connections. The reason of this is that the relation of the landscape-gardener to his client should be strictly professional; that is, he places his talent and training and experience entirely at the services of his client, and owes no business obligations to others. This does not mean that it is improper to take commissions for selling trees, still less does it mean that a nurseryman's agent may not have good ideas about planting, but the only way in which the professions can win complete confidence is to have no commercial connections.

It seems, therefore, that a young man of fair intelligence who is known to accept no commissions and buys his material in the cheapest market might soon gain a position with an assured, if not a large, income. Several of our agricultural colleges are giving instruction in the elements of garden-art, and furnishing their pupils with something beyond a knowledge of how to graft and propagate and do the other routine work of gardening. Besides this, there is a limited number of men in various parts of the country who are already doing creditable work in this field, and good schooling can be obtained by study and practice under their direction. In this way a class of men can be trained who, while not landscape-architects in the broad sense of the term, may yet do much to redeem country and suburban places from the commonplace look too many of them now wear.

A Museum Specimen of Sequoia gigantea.

A SECTION of a trunk of one of the California Big Trees is now almost ready to be set up in the Jesup collection of American woods in the Museum of Natural History in this city. Like the other specimens of this collection, this one is four and a half feet in long, measuring with the grain, but it is rather more than twenty feet in diameter, and when fully prepared the great wheel will be set up on its rim as the beautiful specimen of Redwood is near by. The tree grew on land now owned by the King's River Lumber Company, near Sequoia, Fresno County, California, a long

day's ride up the mountain from Visalia. To make transportation possible it was split into twelve sections, the centre-piece being round, and eleven others radiating from it. It is an admirable specimen, with perfect grain and apparently no wind-checks, although through one of the sections there is a narrow decayed tunnel something like eighteen inches long and an inch or two in width. Outside of this, however, the trunk is perfectly solid, and this decay probably came from some injury to the trunk, which may have been bruised by a falling tree; and if we can estimate time by annual rings of growth the accident happened at about the date when the Pilgrims landed at Plymouth. Mr. S. D. Dill, who has prepared all the specimens for this great exhibition, is now riveting the segments of the giant trunk together with great iron bolts, so that it will be perfectly solid when it is finally ready for its position in the centre of the collection.

The tree from which this trunk section was cut was one of a few trees left standing of a once magnificent Sequoia-grove, and the stumps about it show that their growth was very large, one not far from this tree being forty feet in diameter. The remains of the old mill which has turned these venerable trees into lumber is still there, but other mills are at work cutting from 125,000 to 130,000 feet every day. It may be said that the Converse Basin tract of Sequoias, which belongs to the King's River Lumber Company, is about ten miles back from the place where this tree was cut, and Mr. Moore, the Superintendent of the company, estimates that there is enough of that one kind of timber on the tract to keep these mills running at their present capacity for fifty years. When the trees which stand high up on the slopes of cañons are felled the logs are cut off into proper lengths. They are then blown apart by dynamite into halves, quarters and eighths, and a powerful steam-engine, with a steel cable, draws this split timber down to a greased tramway of round peeled logs, over which they are shot away to the mill, near the mouth of the cañon. They are then sawed up into lumber of proper sizes and floated down through a V-shaped flume from the mill to the railroad, sixty-two miles away. This flume is supplied by a large reservoir in the mountains. Although when dry the Sequoia is one of the lightest of American woods, it is very heavy when full of sap, and will not float readily until it is seasoned, so that the timber needs to lie some time before it is floated out of the mountain. The lumber looks very much like redwood, and is sold under this name. Indeed, it is only distinguished from redwood by the eye of an expert.

This particular tree was called "Mark Twain," and girthed sixty-two feet at eight feet from the ground and ninety feet at the surface. It was a straight, handsome tree some three hundred feet high, and without a limb for about two hundred feet from the ground. Mr. Moore estimated that it contained four hundred thousand feet of lumber, and the specimen cut, four and a half feet long, weighed over thirty tons. It took two men about three weeks to cut it down. The axemen chopped out deep notches on the opposite sides of the tree, leaving a comparatively narrow strip through the centre untouched. A notch was then cut at one end of this centre-piece on the side toward which the tree was to fall, as seen in the illustration (page 546). Two long cross-cut saws were then welded together and the workmen began to saw in horizontally opposite the cut last mentioned, and wedges were driven in until the tree toppled over. It was while the tree was in the act of falling that the photograph from which this illustration was taken was made by Mr. C. C. Curtiss. The other illustration (see p. 547) gives some idea of the size of the tree at the ground. Fifty men of the Lumber Company's force are here seen standing out on the sap-wood and bark of the stump, and the tools with which the giant was overthrown lie in the centre, where there is easily room for a hundred more men. Of course, the butt of the log that fell was sawn off above the bevel made by the axes, and in a plane perpendicular to the axis of the log, so that the bottom of the specimen in the museum represents a cut about ten feet from the ground. A section of the log next above this has been secured as a specimen for the British Museum.

Every lover of nature must be rejoiced at the fact that the National Government has taken possession of several of the most extensive groves of Big Trees that remain in California, so that they cannot pass into private hands and be turned into lumber, a fate which has already befallen so many of these oldest and noblest inhabitants of our mountain forests.

Public Forests and Public Parks.

DR. EDWARD EVERETT HALE has an interesting article in the November *Cosmopolitan* on Epping Forest, which was restored to the public in the year 1882, after a long and stubborn contest, the corporation of the city of London conducting the fight in behalf of the people. The forest once covered an enormous territory, and at the time of the Long Parliament its area was still sixty thousand acres. This had been steadily encroached upon, and when the contest for its restoration began in 1871 the greater portion of it had been appropriated to private uses. When it was finally restored its area amounted to nearly nine square miles, or something over five thousand acres, still a magnificent domain, of about the same length, and somewhat larger, than the territory which it is proposed to convert into a public open space at the Blue Hills of Massachusetts, near Boston. The Blue Hills, however, or the Massachusetts Forest, as perhaps it may appropriately be called, since these hills gave the state its name, are very different in character from the Epping Forest, and, being of a mountainous nature, would be a grander possession for the people of Boston than Epping is for London.

Epping Forest had its origin as a public domain in the fact of its being common land. Many commons still exist in England as survivals of a primitive communal system—an institution that was transferred to New England by the early settlers, whereabout the only traces now left are to be found in the local commons of various old cities and towns, that of Boston being the most prominent. Dr. Hale remembers, for instance, when cows were pastured and carpets were beaten on Boston Common, and although these practices were later forbidden by city ordinances, he thinks that very likely, if tested in the courts, those rights would be found yet to exist. The right of commonage in England still carries with it a great many privileges for the communities possessing it, and in the case of Epping Forest its exercise interferes considerably with the uses of the place for public recreation. The inhabitants of the neighboring villages are the commoners, and they pasture their cows, oxen and horses there, a practice which interferes with the undergrowth and the lower growth of trees. Goats and sheep, however, are said to be "non-commonable."

Another right of the commoners, that of "lopping," enables them to lop for fuel in fagots any branch not bigger than a man's finger. As firewood is valuable in that part of the world, this privilege was availed of to its utmost extent, greatly to the damage of the trees; therefore, under the new régime, the villages have been persuaded to surrender this right for certain other privileges and the sum of £7,000. Considerable damage is still done by forest-fires, set either carelessly or wantonly.

The forest is the favorite place of recreation for the people of London, and the railways carry excursionists thither at fares of a shilling for the round trip to and from the various stations, with half-fares for children. Sunday is a favorite day for excursions, and men go from London very largely in clubs, making special arrangements for picnic places, which are reserved for them. In making its application, each club has to be represented by some one who is responsible for the observance of the park regulations. The maintenance of order is entrusted to a chief and thirteen keepers. In winter and spring one hundred additional men are engaged as a sort of foresters, while in summer only fifty, or thereabout, are needed. The keepers have comfortable houses provided for them, free of rent, in various parts of the forest, and are allowed, besides, twenty-five shillings a week, while the other men are paid twenty shillings a week.

The roads are kept in order by the regular highway authorities. Of the roads Dr. Hale says that they are never finished with the "absurd detail which so often deforms American parks," but in good enough order for any practical purpose. "There is, however, no fiddle-faddle weeding of the edges or cutting out of occasional brambles, such as our park-makers fancy."

And again he says of these roads, "There is none of that dandy-Jack nonsense which weeds up by hand Rue and Mint and Cumin, which is the pharasaic passion of the people who have our great parks in charge. As a consequence, Epping Forest is kept in order at a cost which would sound impossible in Boston or in New York."

From these remarks by Dr. Hale it is to be feared that he does not recognize the distinction between a public park and a public forest. A public park, like Central Park, in New York, or Franklin Park, in Boston, represents for the entire people what the wealthy gentleman's private grounds do for that individual. They furnish pleasant open-air recreation of various kinds for multitudes. The way in which they are used requires the preservation of a high degree of order and neatness, and these are best secured by the most careful planting and maintenance; moreover, as in private grounds, a considerable degree of elegance is both appropriate and desirable. Ragged edges, ill-kept walks, etc., would give an appearance of shabbiness and neglect which could not fail to be reflected in a loss of respect for the place and consequent abuse on the part of the public.

Experience has always proved that it is easier to preserve neatly kept grounds from wanton or careless disfigurement than it is to protect open spaces which are not well maintained.

A public forest, on the other hand, using the word in its stricter sense, although in important respects different from a public park, is a most desirable form of pleasure-ground, and, fortunately, one that is coming into favor on this side of the Atlantic. The Lynn Woods, with its 2,000 acres of forest and lakes, may be compared with Epping Forest, and in the simple form of its development for recreative purposes there is a close resemblance to that of the London pleasure-ground. A public forest, by its nature, does not demand the finish of appearance required for an urban park. Park finish would be as much out of keeping here as an unkempt and shabby treatment would be in a city park. The roads should, of course, be as well constructed as possible. But the more their borders are left to a natural growth the better. The main things demanded are to give the trees the best chance possible to make the most of themselves; then to provide for an agreeable diversity of growth, and to open out from the roads and paths the best points of view and most attractive landscape-passages. The footways need simply to be made comfortably passable by the removal of obstacles that otherwise would cause unnecessary fatigue in their use. With provisions made for rest and refreshment of the public at convenient points here and there, and with proper policing and precautions against fires, little needs to be done in the adaptation of a forest to public uses.

The public forest, therefore, while one of the most delightful and attractive forms of pleasure-ground, is also remarkably economical in maintenance. Possibly, as time goes on, it may even be made to maintain itself from its products in fuel and timber. Both the public forest and the public park form exceedingly desirable, and even essential, features in the equipment of a large city.

Notes of a Summer Journey in Europe.—XVII.

NURSERIES for the propagation of plants are so abundant in certain directions in the vicinity of Paris that a traveler is very likely to wonder what can become of all the young trees and shrubs and other plants with which the fields seem filled for miles along the lines of travel. Large sections are given up to the raising of seeds, while it takes no small area to furnish all the fruits, vegetables and flowers consumed in the great city. Railroads, of course, bring much produce from a distance, but the largest and best portion of it is raised within a comparatively short early-morning drive from the point where it is to be marketed. The French are a horticultural people, and although pépinières, or propagating establishments, appear so numerous, they all seem to find a good and profitable patronage.

Of course, establishments of this kind vary as much here in the manner in which they are conducted and in reliability as in our own country. It is often interesting to note the specialties of particular dealers, for specializing has come largely into this business as into every other branch of trade, and there are now many firms which do a very large business in a quite limited variety of stock. Unfortunately, there was no time or opportunity for me to visit the famous seed, flower and testing grounds of the Messrs. Vilmorin at Verrieres and other places, but, on the recommendation of Monsieur Ed. André, I had the pleasure of inspecting the nurseries of Monsieur Croux at Sceaux, probably the largest and most interesting of the suburban nurseries of Paris which are devoted to the business of raising trees for shade, ornamental and fruit purposes. The establishment is situated in a charming little valley in the midst of a beautiful undulating and highly cultivated country, and surrounded by other concerns practicing the same business. In the nurseries of Monsieur Croux a considerable proportion of the trees are grown until they are quite large, so as to meet the demand for specimens for city planting, which will make a show or give some shade at once. The nearness to the city and easy transportation renders this possible, and the trees commonly sold are each large enough to make a good load for a team.

The artificial training of fruit-trees is here carried on to a surprising extent. Probably in no other country are Pear and other fruit-trees so often trained to peculiar shapes, and there are in this nursery great numbers with forms varying from different degrees of espalier, which are most largely grown, to vase-formed, pyramidal, weeping, spiral and other artificial shapes. Of course, the standard, or normal, forms are very largely grown, but a foreigner is surprised at the proportion that are trained to peculiar shapes and at the care taken to get them perfectly symmetrical.

The collection of shade and ornamental trees and shrubs is a rich one and in admirable order, the soil being good and the climate congenial to healthy growth. The winter of 1890–1891 was unusually severe, said to have been the coldest in twenty years, the thermometer registering as low as eighteen degrees below zero of Raumur, with no snow to protect the ground. In consequence, handsome sturdy plants of evergreen Magnolia were very much injured, while even the common Ivy was badly frozen, especially young plants which trailed on the ground. The handsome Andromeda Japonica is grown here in quantities and frequently has its flower-buds blighted in winter, as it does in the much colder climate of Boston. Our Rhododendron maximum is much used as a stock, instead of the more generally employed R. ponticum, upon which to graft other varieties of Rhododendrons, as it is considered superior.

It is said that this section of the vicinity of Paris did not suffer so greatly as did some other suburbs from the shells of the Germans during the siege; but the extensive nurseries were ruined by the encampments of the enemy, and stories are told of greenhouses full of Orchids and other rare plants of great value, which, being abandoned, withered and died amidst the scene of desolation. But there were trees which came through these trying times without permanent injury, and Cedars of Lebanon, with trunks over four feet in diameter, are examples of them. Some good-sized trees of the rare Cedrela Sinensis are growing here. Although the regular blossoming period is said to be June, one of these trees was, at the time of my visit, in early September, bearing many long, loose, somewhat pendulous panicles of small white flowers. This Cedrela seems to be almost unknown to European and American cultivators, except in the vicinity of Paris, where it was introduced from Japan through Monsieur Eugene Simon, and in a few other localities. The tree has very much of the aspect of an Ailantus, and, indeed, after its introduction into cultivation at Paris it was described by Monsieur Carrière as Ailantus flavescens. But when it flowered in 1875 it was determined from the blossoms that it belonged to the genus Cedrella of another family, and that the species had already been described in a flora of China. Although the Cedrela has flowered for a number of years about Paris, it has not borne the fruit which would furnish the most striking character in distinguishing it from the common Ailantus glandulosa, or "Tree of Heaven." There is, apparently, still some confusion about it, for we find English authorities calling it A. flavescens. Its leaves closely resemble those of the common Ailantus, but they are usually not so large, the leaflets not so numerous, and they are without the peculiar little lobes on the margins near the base which characterize the leaflets of the "Tree of Heaven." When bruised they do not give out the disagreeable fetid odor of the latter. The flowers are said to have an agreeable fragrance. The wood is rather brittle, and the bark of the trunk is dark gray and rough, exfoliating in strips of considerable size. It is some years since this tree was first tried at the Arnold Arboretum, but it has not yet shown sufficient hardiness to withstand our winters without receiving serious injury. It appears to be little hardier than Paulownia, but, no doubt, in some sheltered and favorable situations in a climate as severe as that at Boston it will survive to become a tree. As botanists have collected specimens near Pekin and other northern parts of China there is reason to believe that a hardier race may yet be procured than that already introduced. It is said that this tree is commonly cultivated for ornament in China, and that

in spring the young shoots and leaves are used as a vegetable for food.

High cultivation here, as in so many other parts of the world, seems to favor the increase of certain pests to vegetation. Large snails are here sometimes much more destructive to foliage than ever comes within the experience of New England horticulturists, and roots of Pear and other young trees are often badly eaten by white grubs. Mildews, too, revel in this rich vegetation, especially on Roses and Vines. To combat these the same formula is used which is employed in the vineyards of many other parts of France. It is composed of two kilogrammes of sulphate of copper and two kilogrammes of lime in 100 litres of water, and is applied in a fine spray. Without the addition of the lime the leaves are considered liable to injury by the copper sulphate.

A short visit to the principal nurseries of Messrs. Transon at Orleans introduced me to a collection very different in appearance from that at Sceaux, although largely composed of similar material. Trees and shrubs are grown here in very great quantities, and largely sold when quite small, a considerable portion of the stock being shipped to distant places or out of the country. Instead of large specially trained specimens, we find here good-sized areas given up to a single species or variety, the plants often not too large to be shipped by mail if necessary. As an example I may mention that I found thousands of Spiræa Thunbergii, which were propagated by green cuttings, this mode of propagation being very much resorted to in this establishment for a great variety of plants. The cuttings are planted almost as thickly together as they can stand in circular patches nearly a foot and a half across in beds of well-prepared sandy soil in the open ground. They are given one good watering and then covered with large bell-glasses or "cloches," which are in turn shaded from the direct sunlight by light mattings of straw. The one watering suffices, and the cuttings require no further moisture until the roots start, which may be in a week or two or a month or two, according to the kind of cuttings. The bell-glasses do away with the use of frames, so much employed in our own country, and they have several obvious advantages over them. They are made of thick strong glass, are about a foot deep and a foot and a half across at the mouth, giving room for a very large number of cuttings when closely planted together. They cost less than twenty cents each. When the cuttings have formed sufficient roots they are transplanted thickly together in rows in the nursery.

The firm has several branch nurseries in localities most suitable to the growth of particular classes of plants, but lack of time made it impossible to visit any of these. The general topography of the country is not attractive, being almost a plain, and the day spent here was the hottest experienced in Europe.

Arnold Arboretum. *J. G. Jack.*

Notes from West Virginia.

ON my study-table this morning is a strange bouquet. It consists of white Chrysanthemums, true November blossoms, and a large spray of purple Persian Lilac, filling the room with fragrant memories of May. Our beautiful Persian Lilac-tree—for the shrub, fifteen feet in height and twenty in spread of branches, may well be called a tree—has been forced into bloom by the warm sunny days of the past month. Down in the shrubberies a Red Bud is blooming almost as lavishly as it bloomed in April. Such a blending of the flowers of spring with those of November is a strange sight, and befits this most singular of seasons. The fifth month of drought has now begun, and all the world hereabout is turning to dust.

Indoors we find some comfort in the large room given up to plants, where we can control the water-supply. Long experience in window-gardening has taught us that it is wise to have a background of beautiful foliage-plants for the few flowers that can be coaxed into bloom in the dark winter months. Some Palms and Ferns are a necessity, and there are some desirable plants which are charming both in and out of bloom. One of these, not often seen in windows, is Imatophyllum miniatum, which seems perfectly at home in an ordinary sitting-room heated by a base-burner. Our specimen grew finely in a shaded position on the piazza throughout the summer, and is now about to bloom. It has long sword-shaped dark green leaves of good substance, curving out gracefully on all sides. It requires a constant supply of water at the blooming period. It is of the easiest culture, does not seem to have any insect enemies, and is one of the most graceful and ornamental of plants. The ideal window-garden should be liberally supplied with fragrant plants. A little pot of Thyme is a constant joy, and a place should be found for a few sweet-scented Geraniums, such as the Rose, Nutmeg, Apple and Lemon scented varieties. Heliotropes are capricious plants, often refusing to live under the most careful treatment. They need plenty of water, heat and sunshine. Olea fragrans blooms a long time, and, with care, makes a fine window-plant, filling the room with its delightful perfume. It needs sun, and the leaves should be frequently sprinkled, but too much watering of the roots will cause it to drop its foliage.

The plant-room should never be overheated. We endeavor to counteract the drying effect of our base-burner by frequent sprinkling of our plants, giving air in mild weather and by resting the pots on trays filled with moss.

This is the Chrysanthemum month, and we rely upon these flowers to put the finishing touches of beauty to the window-garden. Next month will be the turn of Roman Hyacinths, Freesias and of Jessamine and Daphne odora, which is now full of promise of bloom. Large smooth-leaved Begonias, that are almost always covered with scarlet blossoms, are very useful to lend a touch of gay color here and there, and some of the rough-leaved varieties, such as Gloire de Sceaux, are always beautiful. This has bright leaves of red-bronze, and should be placed where the sunlight can filter through the foliage. A striking defect in many window-gardens is the commingling of discordant shades of crimson and scarlet. This may be easily obviated by arranging all the light and dark scarletty reds in one window and the deep crimsons and crimson-pinks in another, with some white flowers in each.

For the past week the atmosphere has been dimmed by a dense cloud of smoke, through which the rays of the sun can barely struggle, while at night the moon gleams faintly with a strange red light. The smoke comes from the mountain fires, which have been burning in every direction north, south, east and west of us. The mountains themselves are obscured in the day-time, but gleam at twilight with an ominous glare that tells of the destruction of untold acres of timber. The aspect of the country is barren and desolate, parched to winter deadness. The rivers are so low that they have an unfamiliar appearance; even the Potomac has dwindled almost beyond recognition. The old people tell us that there has not been such a drought for forty years. Yet a good rain may yet save much of the wheat-crop.

Rose Brake, W. Va. *Danske Dandridge.*

Plant Notes.

Dendrobium formosum giganteum.

THIS Dendrobium has long been known both to science and cultivators as the finest of that section of the genus to which it belongs—namely, the Nigro-hirsute, or those whose stems are clothed with short dark hairs, as in D. Jamesianum and D. infundibulum. Although D. formosum has been known to gardens for over fifty years, its cultivation in Europe does not seem hitherto to have been very successful. It is widely distributed through India and Burmah, and is never found at any great altitude, but usually on the plains, where high temperatures are the rule both in winter and summer, with rain in some districts eleven months in the year. From these few facts, made known by those who had seen the plants growing, it has been hitherto thought necessary to grow D. formosum in the hottest house the year round, and we may add that it is fortunate that the plant is plentiful in India, otherwise we should not be able to procure it at such a low rate as we can at present. All plants need a season of rest, and, even though they come from the hottest regions of the globe, nature has provided for this period of rest in various ways. In Veitch's *Manual* we are told that "the plants are sometimes exposed to a temperature of 110 degrees, Fahrenheit, in the shade, when the stems are much reduced in size by the heat." During the growing season we keep the plants suspended in the house where Calanthes are grown, which is now kept at seventy degrees at night, and our plants have done remarkably well this season; the old bulbs made in their native woods are in some cases surpassed in size by those made this year, and they are now commencing to flower freely. After the flowering season the plants will be wintered in a temperature of fifty degrees at night in a cooler house, until signs of growth are apparent next March or April, when all the heat and moisture available will be given and maintained

until the flowering season is passed. Under this treatment Mr. George MacWilliam, of Whitinsville, Massachusetts, has grown and exhibited in Boston, perhaps, the finest D. formosum ever seen in cultivation, and this fact appears to be due to the long rest given in the cooler temperature. D. formosum is an exceedingly ornamental plant when in bloom, as the foliage of the past and present year is often retained on the plants as a set-off to the large pure white flowers, which are sometimes four inches in diameter, the lip having a conspicuous yellow blotch, varying in some plants from bright orange to pale lemon-yellow. The flowers are very durable, lasting several weeks in perfection. As the plants seem to grow best when suspended from the roof of the house, basket-culture or perforated pans seems the best treatment for them, as the roots like to ramble, and seem to resent confinement in pots. I have seen it stated that wood-lice do not feed on living roots of Orchids, being content to live on decayed portions, but I am satisfied that they are very partial to the roots of this Dendrobium, and for this reason the plants are often plunged in water a few minutes to drive out the wood-lice, when they are easily caught. It should be stated that this species flowers with the completion of growth, hence the rest is given after the flowering period, while in the majority of Dendrobiums the resting season precedes the flowering time. The statement of some eminent authorities that horticulture is necessarily an empirical art, seems to be supported by the fact that it takes a temperature of 110 degrees to rest this plant in Burmah, while we can accomplish the same result by reducing the temperature twenty degrees from normal, while we could not imitate the conditions noted under which the plant grew at home.

South Lancaster, Mass. *O.*

Foreign Correspondence.

London Letter.

Phalænopsis Culture.—I recently visited the garden of Mr. Wigan at East Sheen, near Richmond Park, a garden famous for some classes of Orchids, and particularly for Phalænopsis, which are grown exceptionally well there. Mr. Young, the grower, kindly furnished me with some details of the treatment he finds most suitable for these plants, and these may be useful to others. The Phalænopsis-house at East Sheen is twenty-five feet by fourteen feet, with a low-span roof, and it stands on the north side of a high wall, so high as to completely shade the house from sunshine all winter. The house has bottom ventilators only, water-tanks below the stages, which are planted with Fittonias and similar low-growing foliage-plants. The paths are formed of gravel, which Mr. Young believes in keeping forked quite loose. The Phalænopsis are all suspended from the roof. They are planted in teak baskets, small in comparison with the size of the plants, and they are partly filled with potsherds, partly with sphagnum. Mr. Young does not use any charcoal, and he uses sufficient sphagnum only to hold the moisture about the roots of the plants in hot weather. They are all carefully replanted in May, when they are allowed to get dry, and then all the old moss is washed out with the aid of a syringe and replaced with new. The plants are not transferred to larger or new baskets unless it is quite necessary. During summer they are kept moist, almost saturated at the roots, and in hot weather the foliage is slightly dewed over with the syringe. The atmosphere is kept at saturation point, and the temperature at from seventy to eighty-five degrees. In winter less water is given; only when the moss about the plants is dry are they watered. Mr. Young dips the plants overhead in a bucket of water to water them. In winter the temperature is allowed to fall to sixty degrees at night and sixty-five degrees by day, except when the weather is mild, when the temperature is kept about five degrees higher. There are about 300 plants of Phalænopsis in this house, some of them being very fine specimens with leaves a foot long. Almost every one of the best of the species and hybrids is represented, while of such kinds as P. Schilleriana, P. grandiflora and P. Stuartiana there are many fine plants. The effect produced by these Phalænopsis when in flower in January is a most beautiful one. To grow them well one requires much patience and proper conveniences, which are not of the most inexpensive kind; I think I must add also the element of luck as having something to do with success. But when they do behave themselves Phalænopsis fully repay all the trouble taken with them. A great deal appears to depend upon the position and shape of the house. If one can only find the house that suits Phalænopsis their cultivation then presents no exceptional difficulties.

Cattleya labiata (Warocquena).—This grand Orchid is the glory of the Orchid-house in October. It is the principal attraction one meets with in Orchid collections in England, a gratifying circumstance, seeing how rare and coveted this plant was before it was discovered in such abundance by the great English and Belgian Orchid collectors. It is good-natured under cultivation even for a Cattleya, and it appears to flower at least as profusely as the best of them. Where it cost guineas a year or two ago it scarcely costs shillings now. At a London auction sale this week I saw fine healthy plants, with a dozen or more pseudo-bulbs and in most cases bearing several flower-sheaths, sold for from eight to fifteen shillings each. A large box of cut flowers of this Orchid, shown by Messrs. F. Sander & Co., gave buyers an opportunity of seeing the character of the plant. It ought certainly to rank among the twelve best garden Orchids. One meets with so many frauds in the shape of Orchids—I mean in their having good looks coupled with a very bad character in the garden—that it is a genuine pleasure to find one to which too much praise cannot well be given.

Cattleya Alexandræ.—Of this I am a little suspicious, a plant of it having flowered lately at Kew—the first to flower anywhere, I believe. It is one of the C. guttata class, and, judged by the plant flowered here, one of the worst of them. The flower is three inches across, like that of C. guttata, var. Leopoldii, the sepals and petals dull greenish brown with a few reddish blotches, and the labellum rosy mauve. Of course, the Kew plant may be the worst possible variety, and the collector who pictured and described this discovery as a many-flowered beauty may not have seen anything so poor as the first flower that has opened in England. We hope not.

Gladiolus oppositiflorus.—The re-introduction of this plant, which has lately been sent from the Cape to Kew, where it is now in flower, will, we hope, enable those who are interested in the history of garden Gladioli to decide soon a question which has been a puzzle for many years, since Dean Herbert's time, in fact. According to the worthy Dean, G. Gandavensis was raised in 1837 from G. oppositiflorus and G. Natalensis, and not, as was stated by others, including the raiser himself, one Beddinghaus, a gardener, from the last-named and G. psittacinus. According to Herbert, this latter cross is almost impossible; at any rate, he could not accomplish it, though he tried many times. G. Gandavensis was the first of the large-flowered, beautiful, easily cultivated hybrid Gladioli that originated in gardens. Monsieur Emile Lemoine, of Nancy, who is an authority on all questions relating to garden Gladioli, has recently stated that a French court gardener, named Souchet, set to work to breed Gladioli, about forty years ago, by crossing G. Gandavensis with G. blandus, G. ramosus (this, according to Herbert, is itself a hybrid between G. oppositiflorus and G. cardinalis), and he was soon followed by other French gardeners, who made of Gladioli a specialty. Our Mr. J. Kelway has done as much as any one man toward the improvement of Gladioli. He obtained Souchet's hybrids in 1857, and crossed and saved seeds from them. The point I wish to emphasize is this: If Herbert was correct in stating that G. oppositiflorus was the parent of two of the most valuable of the original hybrids, viz., G. Gandavensis and G. ramosus

(of gardens), then in that species we have the principal progenitor of the present magnificent race of Gandavensis Gladioli, and through them of the Lemoinei and Nanceianus races. G. oppositiflorus is six feet high and has a spike two feet long of large white flowers with amethyst stripes. At least a dozen flowers are open together, and they are arranged in two straight rows on each side of the spike. The first flower opened a week ago and it is still fresh. It is possible that the lateness of its flowering at Kew is due to the corms not arriving here till June. Should, however, the plant really flower regularly in October and November it might be possible, eventually, to obtain from it a race of Gladioli to bloom at Christmas. The exceptional stature of G. oppositiflorus and the chaste beauty of its flowers ought to make it valuable to breeders of Gladioli. The Kew plants have been grown in pots in a cold house. They do not appear to be at all drawn.

Earlier Opening of Kew.—An agitation has been started to get the gardens at Kew opened to the public in the morning as well as in the afternoon. At present the use of the gardens before noon is limited to professional people and others specially interested, such as painters, photographers, etc. These are admitted by ticket, about a thousand people annually availing themselves of this privilege. In the morning, too, all the rough and dirty work, watering and syringing indoors, are got through, so that by noon the whole place is in trim and ready for the crowds of people who then have the free run of the whole establishment from twelve o'clock till sunset. This arrangement has worked well for fifty years. Now, however, the British public, or, at any rate, that portion of it which lives in the neighborhood of Kew, has decided to ask for access to the gardens for the whole day. It is surprising how many people there are who look upon Kew as a pleasure-park merely.

London. *W. Watson.*

Fig. 92.—Felling a Sequoia gigantea in Fresno County, California.—See page 541.

Cultural Department.

The Grape Season.

THE remarkable grape season of 1892 opened on my grounds with the ripening of Moore's Early on the 9th of September, just nine days later than the same variety ripened last year, and there has not been a rainy day since which has interfered with harvesting the crop. This unprecedented state of things enabled the grapes to ripen thoroughly and to attain their best quality, so that there was less loss from splitting than I have ever experienced. The Pocklington suffered most from this, which proves this variety to be chronically weak in any season here, and on my soil its redeeming qualities do not suffice to warrant its retention; and yet I occasionally meet a man who relishes its pronounced foxy odor and tough pulp. On the other hand, Woodruff's Red, which has always cracked badly heretofore, has showed scarcely any tendency to do so this season. The clusters were large, generally shouldered and compact, and the grapes ripened up to a bright brick-red, which made them very attractive to the eye. The quality, to my taste, though never very good, was rather better than usual, but customers say they "look delicious," and perhaps

they sell better than if they tasted delicious and were less attractive to the eye.

Brighton and Lindley are my favorite red Grapes, and both succeeded remarkably this season. Both are liable to fail in setting sometimes, but this defect has not been noticeable this year. These grapes were near perfection, and I am glad to be able to detect a growing appreciation for fruit of such excellent quality. The late Lowell Mason once had some Brighton grapes for dessert, and when inquiring where they came from he was surprised to find that they were grown in his own garden from vines which I had sent him. On verifying the word of his gardener, he said, with emphasis, "Well, if we can grow such grapes out-of-doors, there is no need of bothering with hot-house varieties." Brighton is early and sometimes loses in quality late in the season. But the Lindley is later and supplies the place of the Brighton when its quality fails.

Niagara still holds its own against all competition thus far among the white Grapes for the size of berry-clusters as well as productiveness, while the quality meets with universal commendation when grown as I grow it and fully ripe.

Worden, Cottage, Wilder, Marianna and Herbert hold their own as desirable black kinds. Cottage sometimes drops badly, but this year the fault has not been apparent, showing that there is something in the season to counteract this failing. There is little to choose between Delaware and Berckmans. They are identical in size and color, and equally good in quality. The latter fails in fertilizing sometimes, which may be due to lack of proper company, but both are rather too small to prove profitable for me. Diamond has never reached the ideal which I had formed of it from high commendation in other sections. I am still hoping that another year will give an increase in size of berry and cluster as well as in good quality. It would seem as though such a season as this would have secured the best development, but I was not satisfied with it.

Green Mountain promises to be the earliest white Grape, with Colerain a close competitor. Eaton has size and good looks to recommend it, but it lacks that quality of sweetness which makes Worden and Cottage so desirable. However good a grape may be in other respects, if it lacks sugar with its acidity it is a failure. There is the same lack of sweetness in Grein's Golden, Missouri Riessling, Noah and Elvira. Lady Washington is better than ever, and Brilliant would delight the taste of a most exacting amateur. The new white Grape, Esther, fruited here for the first time and proves to be of good size, both in berry and in cluster, and of fair quality, although another season will be required to fully test it. The same may be said of Rockwood, and both appear to be late in ripening.

Fig. 93.—Stump of Sequoia gigantea, on land of the King's River Lumber Company.—See page 541

Catawba, Highland and Black Defiance ripened fairly well, which they do not usually do here.

Anthracnose was the only serious malady which troubled our vines, and there is very little mildew or rot, both of which can be brought under control. The early season came on slowly, and was very wet, which made cultivation difficult and troublesome. Warfare with weeds had to be constantly waged, with the advantage usually on the side of the weeds. The vines, too, felt the same exhilarating influence, and grew abnormally, so as to make pruning a great task. Since July, however, we have had a continuous drought, with only enough water in occasional showers to lay the dust on two or three occasions. Strawberry-plants have not made half their usual growth, and there has been far less fall setting than usual this year.

Montclair, N. *E. Williams.*

Lettuce as a Greenhouse Crop.

In recent numbers of this journal we have reported some experiments relating to greenhouses and greenhouse-work, an account of which was published, with full details, in the September *Bulletin of the Ohio Agricultural Experiment Station*. Mr. W. S. Turner, of the Horticultural Department of that station, has been giving some attention to the growing of Lettuce under glass, and we quote herewith a condensed statement of his experience in this direction:

For germinating Lettuce-seed well-pulverized compost soil is good, although we consider black muck better than anything else we have ever used, as it holds moisture well, is not lumpy, and the plants can be taken from it for transplanting without breaking the small roots, as happens in heavier soil. Use flats for sowing seed and first transplanting. They may be easily moved under benches, or from a warm to cooler, or light to darker location, as the seed or plants may require. This saves space, either in greenhouse, hot-bed or cold frame. Sow seed in drills one and a half or two inches apart, making the drill marks one-fourth of an inch deep, having the soil in flats somewhat packed, so that the marks will be of uniform depth. Cover by sifting with the hand sufficient fine-screened muck or soil over the box to cover the seeds from sight, smoothing over with a stick or board.

Care should be taken in watering to use a fine spray, or, better still, to set the flats for two or three hours in the water-bench and irrigate from below. There is considerable danger of the young plants damping off in the dark weather of winter or early spring. To avoid this the flats are kept in as warm, well-ventilated a place as possible and the soil well stirred, using water very sparingly.

We transplant into flats two by two inches apart when the second leaves are well started; this will be about three weeks from sowing. The soil used should be of rich compost, heavier than for seeding, so that the plants may be taken up for the last transplanting with a lump of dirt about the roots. Stir the soil frequently between the rows to prevent damping off as before. They may remain in these flats about three weeks after this transplanting, or longer if kept in a cool place, or be carried out into a hot-bed or cold frame, as the case may be, for hardening off.

The soil in the beds into which the Lettuce is transplanted the second and last time should be a rich compost, or muck may be used with a mulching of fresh, well-pulverized horse-manure. Set the plants six or eight inches apart. Such varieties as Grand Rapids and Simpson do well six by eight, or even six by six inches apart, but head Lettuce requires more room, at least eight by eight inches apart. Cultivate between the rows as before; water often, but not too heavily, until the plants cover the surface of the soil, then water by pouring on in a solid stream between the rows, from hose or watering-can. This is in order to keep the water off the foliage as much as possible. If large-leaved Lettuce-plants are well drenched the water runs down toward the hearts, and it is very slow in drying out, a condition which is favorable for rot and mildew.

To fight the green fly (Aphis) use tobacco-dust, which may be had at any cigar factory; one cent per pound is the cost of it in Columbus. Sift it quite plentifully over the young plants soon after the first transplanting. Use again soon after second transplanting, but when the plants get large it will not be sufficient in the greenhouse, but will answer in hot-beds or cold frames. In the house, fumigate by burning the tobacco-dust, as it burns easily, makes more smoke than tobacco-stems, and is not so dangerous. After fumigating the lice will drop on to the soil, when by sifting the tobacco on them they will be quite thoroughly destroyed.

For convenience in note-taking and reference, we have arranged the varieties into five groups. This grouping is not intended as a systematic classification, but varieties of similar habits of growth are simply brought together. The first group embraces those that form quite firm heads. The second and third groups contain the loose-heading sorts; those with plain, or nearly plain, leaves being placed in the former and the curly-leaved in the latter. Those in the fourth group do not form heads, but loose bunches of leaves merely. Those in the fifth group are Cos varieties.

We consider the first and second groups undesirable to grow in this locality, because there is very little demand for them in the market. They are more subject to diseases than open-growing kinds, they require more space, and it takes a longer time for them to come to maturity. This is especially true of the second group. Of the first group, Perfection White, Forcing and Stone Head are the earliest. Tennis Ball is the best of this class. Landreth's Forcing, Rawson's Hot-house and New Forcing are no improvement over the Tennis Ball, as far as we have been able to discover. New Forcing is very uniform, but not as firm as the Tennis Ball, and has a bronze tinge, which is not desirable.

Those of the second group resemble one another quite closely in growth, but vary in color. They are all quite good yielders, but very slow in forming heads; among them are Deacon, Boston Market, and the like.

Those of the third group are the most desirable for home and garden growing, being very vigorous, heavy yielders, as their weights indicate, also very crisp and tender; but they are too brittle for marketing, and of such form that they cannot be handled as head lettuce, nor as loose bunch-lettuce, and are, therefore, not desirable for market. Blonde Blockhead, Marblehead Mammoth and Sunset cannot be distinguished from one another except by their labels. This variety is the most desirable of the class, with the exception of the Onondaga and All Cream, which are very silky and pliable in texture, easily handled, but are tinged with red like the Prize Head, making them unfit for market, with possible exceptions. All Cream is much more vigorous, and a heavier cropper than the Onondaga. Tilton's White Star is not specially noteworthy. Henderson's New York is too dark in color to be desirable, but is a very strong grower.

Those of the fourth group resemble one another in growth, but are quite different in appearance of leaf and coloring. The Tomhannock is colored like the Prize Head, but does not form a head, and is much like the Grand Rapids in growth. Black Seeded Simpson is the quickest-growing of all varieties, rightly named by Salzer as the earliest (Salzer's Earliest). It is the most desirable kind for late spring growing in cold frame or out-of-doors. Nellis' Perpetual and Curled Simpson are very nearly alike and not particularly valuable. Grand Rapids we consider the best of all varieties for winter and early spring crop, because of its freedom from disease, fine appearance of leaf and bunch, and good handling qualities. Its one fault is that it is a little slow in coming to maturity, but it makes up for that in steady gain in weight after it is large enough to harvest. Many varieties begin to lose in weight as soon as mature, and hence must be cut promptly, but with Grand Rapids this loss is very small, even if left standing for some time. In the east, head lettuce is grown almost exclusively, probably owing largely to the demands of the markets. Grand Rapids lettuce sells as well or better than head lettuce in Columbus and most other Ohio markets, and is much more profitable to the grower, because it can be planted closer, thus giving a larger yield, and, as above stated, it is less liable to disease. It is so much superior for forcing to all other varieties that those who have given it a trial, plant it almost exclusively. No grower in this state need hesitate to plant it; in fact, he can hardly afford to plant any other variety. This may seem to be a strong statement, but the facts so far as observed will bear it out. Chicago Forcing is too tough in texture and too dark green to be desirable. Denver Market is too slow in growth and too liable to disease to be of any value. Boston Fine Curled, Green Fringed and Oak Leaf are only suitable for decoration, and may be raised in limited quantities for the holidays.

The Cos Lettuces are so little known and are of such dark green, dock-like appearance, that they could scarcely be given away in this locality, although the inside leaves are quite brittle and good when well blanched.

In market value the average weight of heads corresponds quite closely with the price. In early winter and late spring, small heads of two-ounce weight bring about twenty cents per dozen in this market; four or six ounce heads about forty cents per dozen, although a much larger quantity can be sold in late spring than in early winter. In late winter and early spring two-ounce plants will bring thirty to forty cents; four and six ounce plants from sixty to eighty cents per dozen. It is, thus, very desirable to have the best and largest crop come off in February and March. There is a moderate demand for lettuce at Thanksgiving-time and also at the holidays, but only a limited amount can be sold. All available space should be devoted to lettuce to come to maturity in February or March.

It takes eleven or twelve weeks to grow the early winter and late spring crop, and thirteen or fourteen weeks to grow the late winter crop, as the young plants grow slower through the dark months of winter. By the use of flats four crops of lettuce may be grown in a season, three in the greenhouse and one in cold frames or hot-beds, but all may be started in the house. The young plants occupy the flats about half the time of their growth, so that the entire space required by a crop is occupied only about six weeks. Three crops may be

grown in the house; the first is only a partial crop on account of the moderate demand, the second is the main crop. The third will be partially crowded out because so many other plants claim room in the house in early spring. The third crop may be grown between Tomato-plants with moderate success, and comes off a little before, or at the same time as, the hot-bed crop. For the last crop the plants may be transplanted into open ground or cold frames and then be earlier than ordinary outdoor lettuce.

The possibilities of production may be estimated as follows: We have grown crops on the middle benches that were harvested the last of February and the first of March that averaged one-half pound per plant; at 6 x 8 inches apart this gives one and one-half pound per square foot. At fifteen cents per pound the product would bring 22½ cents per square foot. A fair estimate for the season would be thirty cents per square foot of greenhouse space for the lettuce crop, and about one-third that amount for hot-bed space. This, it must be remembered, is only for Lettuce; other crops following in both house and hot-bed make the space much more valuable. Outdoor space may be counted at five or six cents per square foot. So it may be seen by summing up all the crops together that a reasonable amount of money may be made in raising lettuce, if one is successful.

The necessary elements of success in lettuce-growing may be summed up as follows:

Keep the plants in flats until ready to set in permanent bed. Use rich compost soil. Use good judgment in watering. Cultivate the crop as much as possible. Keep lower dead leaves well picked off. Watch for and fight the green fly incessantly. Grow Grand Rapids, unless the market demands other varieties.

Potting Soils.

HERE in New England, as in most eastern states, it is highly important that a supply of potting material be laid in under cover for the winter's use, and there is no better time to see that the main supply is sufficient to last until after midsummer next. Rose-growers and others are beginning to appreciate the importance of laying in a stock of loam suited to their purpose, and placing it where it can be thoroughly well frozen during winter. I am puzzled to know which are the worst foes of the gardener and florist—those of fungoid origin or insects and true worms after their kind. Of this animal class I feel sure we should have less to dread if our soils were carefully laid in when convenient, and not stacked up in heaps to exclude frost. If its kindly influence were rather invited and allowed to penetrate every inch of the soil, we should hear less of root-gall and eel-worms on Violets, Roses, Carnations, Cyclamens and other plants. Where it is not possible to freeze soil, and insect foes are prevalent, the other extreme must be adopted, and a system of heating the soil should be adopted. There is nothing new in heating the soil to kill insects in the egg and in other stages of growth. I well remember when a boy seeing my father bake his leaf-mold before he dared to use it for choice plants and Ferns. Our most careful attention should be given that the loam is of a good texture; we can make it as rich as we please afterward. Above all, we should see to it that we are not driven to scrape around to get enough soil together at the last moment for our needs. Here is where the trouble begins, which develops and spreads with such fatal effects later on. While I do not advocate storing soil for any length of time before using—six months is long enough—it is a great gain to have all the vegetable matter thoroughly well decomposed before handling it, for in this way much labor will be saved which would otherwise be needed in future weeding.

It was once considered necessary to the successful growth of the commonest plants, as the Carnation or Auricula, to have a great number of ingredients in the soil and in the most exact proportions. Much of this care in compounding soils has passed away with the old-school gardeners who practiced it. We can grow just as good Azaleas to-day in loam and leaf-mold as were ever grown in peat. Ericas and Boronias also thrive in a like compost if made porous. Good well-decayed leaf-soil is invaluable to the gardener, and great care should be taken when storing the leaves to throw out the sticks or branches, for these encourage fungus-growths. Where Pine-trees are common it is well, also, to avoid mixing in the pine-needles; the resin they contain prevents rapid decay, and is in itself injurious. The use of sand in potting composts is not so generally appreciated as it deserves to be. The value of silica in soils as plant-food is small, though appreciable, when compared with its value in rendering available all other plant-foods contained in the compost. If a soil becomes sour it is at once poisonous to plant-roots, but given a liberal addition of coarse sand the most adhesive soil may be made fertile by its more perfect aeration. The water will pass through readily, and the air take its place until again replaced by water, and thus a perfect system of sanitation is maintained. The quantity of sand necessary must be determined by the texture of the loam.

Where Orchids are grown Fern-root is an essential for the winter's work. The large tufts of Osmunda, common in pastures, produce the best medium known to-day for the successful culture of Epiphytes. The tufts should be grubbed up from above the surface level and stored for winter, when it may be prepared at odd times by separating the rhizomes of the Fern from the fibrous roots. It is well, also, to keep the brown fibre separate from the coarser, because older, black portions which underlie the Ferns as they grow upward. Osmundas grow in wet, swampy soil as well as in drier uplands. The fibre is best when obtained from the latter source. This so-called peat is now largely exported to England for Orchid-culture there.

Sphagnum-moss is also an essential in most establishments, and to have it in a condition to start growing freely when used it should be gathered as late in the season as possible and stored where it will freeze. It can then be thawed out, cleaned and used at any time; it is a great mistake to be without it, as it cannot be procured here until April, when a great portion of the work is done for which it is required. Sphagnum needs a rest, like everything else that grows, and, if gathered late, it has already gone to rest and can be stored without injury if moist enough to freeze.

South Lancaster, Mass. *O. O.*

Correspondence.

Echoes from Madison Square Garden.

To the Editor of GARDEN AND FOREST:

Sir,—Again a Chrysanthemum season, and, again, the flowers average distinctly larger than the year before. Truly, the cut-flower grower does marvelous things with the plants which he seriously takes in hand. It is only four years ago when the first exhibit of the profession here was made in an exhibition-tent in Union Square, and to-day we find the market growers of flowers practically monopolizing the tables and easily winning the rich prizes. It may be questioned, however, whether the flowers are not being rather overdone, and whether there will not soon come a surfeit of such mammoth flowers which have their limitations. In a competition, of course, size counts, and the judges give the prizes to cubic contents every time, questions of taste not being entered on scales of points. Outside the competitions, the specimen blooms collectively, in masses of half-dozens and more, make bold and handsome decorations for large apartments. It is a curious fact, however, that there seems no place for a single bouncing bloom, even with the long stem, which is so potent a charm nowadays. In spite of its mass of color, it does not look well in any vase yet devised, and every one who noticed the numerous specimens carried through the city streets lately must have noted that they always seemed awkward things to manage. A flower which does not compose well with a fair damsel has decided limitations.

How to exhibit large specimen flowers in the least hideous way is a question which is perennially discussed in every horticultural society of the two continents, and there is much to be said on the side of the cup-hunter as well as on that of the committee responsible for making an attractive show for the public, and their views are apt to be somewhat divergent. The sharp cup-hunter favors the boards, because on them the flowers appear to the best possible advantage, as far as the points of competition go. He can dress his blooms and set them up to appear at their very best as the judges come, and there seems no reason why he should not be allowed these advantages. It is no secret that the New York Florists' Club do not favor boards. On their part they have entered into exhibition management with a very high purpose of providing attractive as well as instructive exhibits, and the prizes for cut flowers were mostly offered for those with long stems shown in single vases. The result appeared to me only a modified success, for on the low tables used and under the crowding of the exhibits, one, after all, only saw a glare of confused and sometimes inharmonious colors with no foliage effect. It may be possible to arrange these exhibits more satisfactorily, but the idea seems to me based on two false assumptions. One is that the Chrysanthemum has any foliage worth considering, and the other is that the only desirable stem is one as stiff as a very stiff poker.

The bane of the flower-show is the dilatory exhibitor who

unloads his flowers, in company with numerous others of his kind, just before the judges are ready to act and after the committee has about concluded that there will be nothing to show. There is no possible doubt that with a few hours' study such a competent committee as managed the late show could produce an ideally attractive effect even with the incongruous material, and I have no desire to criticise when there was so much to commend. It might be suggested, however, that the almost primary want of a Chrysanthemum-show is a wealth of foliage-plants to which one could turn one's eyes for rest. Of these we can scarcely have too many, and if the masses of flowers could be broken with them it would seem especially desirable. As no one was ever discovered at a show looking at those floral mops known as plants grown to single blooms, it might be well to drop these from future schedules and devote the money to the encouragement of the growth of plants furnished in a fairly natural way. Such plants have been known to give an impetus to the culture of the Chrysanthemum in gardens, and this seems a point to aim at in a flower-show.

The Chrysanthemum is such a sturdy and lasting flower when grown without heat that it was a pleasure to see the flowers in the Garden this season usually lasting their normal time, in striking contrast to those of last year. The season has been without strong frosts and very dry, and, apparently, no fire-heat had been used by most of the growers, a practice which should be universally followed. A soft, flabby Chrysanthemum is a miserable object, quite out of character, it naturally being one which appears at its best in the open under a clear sky, sparkling in frosty air.

Except in mere size, there does not seem often any material improvement in these flowers. Occasionally there is a new type more or less attractive, but we get no better colors than we have had for some years. Whites and yellows we have always had in abundance of every possible shade, while satisfactory pinks are, as ever, few and far between—none to-day better than Bouquet Fait in color. For grace and refinement, it seems to me that the ordinary grower need not search entirely among the latest productions. Some of the modern kinds, while very useful for the exhibitor, are not desirable for those who grow their flowers to less size, and often under rude conditions or some exposure. These kinds, naturally, have great substance and very numerous petals. Under ordinary culture they are not attractive, and they are specially subject to blight from the first breath of frost.

Every one must regret the absence from the shows of the attractive Pompons and the more fanciful varieties, as the Anemones, which are still enjoyed in many gardens.

Elizabeth, N. J. *J. N. G.*

A Rare Plantain.

To the Editor of Garden and Forest:

Sir,—Plantago media was recently found in Framington, Maine. The local botanist who found it, not being able to identify it, sent it to Merritt Fernald, of the Harvard Herbarium, who classified it as above, and stated that so far as known it had only been found in the vicinity of Syracuse, New York. This is, therefore, an addendum to the newly published edition of the "Portland (Maine) Catalogue" of plants, which, of course, does not mention this species in its list of Plantains.

Framington, Maine. *H. P. Keyes.*

Exhibitions.

Boston Chrysanthemum Exhibition.

THE growers of Chrysanthemums hereabout may well feel proud of their conspicuous success. The latest products of their skill showed evident progress; and, although the exhibition was not so extensive in some departments as that of last year, the quality of the plants and flowers was distinctly better.

Competition was keenest in the class of specimen plants. Mr. T. D. Hatfield, gardener to Walter Hunnewell, Esq., has of late years been a frequent winner in this field, and he again took the leading prizes. His twelve plants were excellent in every particular, and included specimens of Empress of Japan, Etoile de Lyon, Frank Hatfield, Garnet, G. Daniels, John Laing, Mrs. Bishop, Mrs. Fottler, Tupelo, V. H. Hallock, White Cap and W. H. Lincoln. Mr. Coles, gardener to Arthur Hunnewell, Esq., of Wellesley, was second in the same class with a group of neat, well-furnished specimens, and Mr. Kenneth Finlayson, gardener to Dr. C. G. Weld, of Brookline, third.

The first prize for six plants of Japanese varieties was also taken by Mr. Hatfield, with Cullingfordi, Ivory, Louis Boehmer, Miss Annie Manda, Mrs. Walter Baker and Walter Hunnewell. The specimen of Louis Boehmer was the finest plant in the hall, and the best ever seen of this particular variety.

Mr. Atkinson, gardener to John L. Gardner, Esq., of Brookline, received first prize for a group of plants arranged for effect, and Mr. William H. Elliott, of Brighton, was second. Nathaniel T. Kidder, Esq., of Milton (Mr. William Martin, gardener); Dr. C. G. Weld and Francis B. Hayes, Esq., of Lexington (Mr. James Comley, gardener), also showed prize-winning groups.

Six admirable examples of superior cultivation were exhibited by Mr. Alexander Montgomery, of the Waban Rose Conservatories, Natick. The varieties were Domination, E. D. Adams, E. G. Hill, Hicks Arnold, Mr. H. Cannell and W. H. Lincoln. These plants were not entered for competition, but they showed a promising departure from the prevalent method of training, the branches being tied to wire hoops, making beautiful broad specimens of semi-globular form. Groups of plants were also furnished by the Bussey Institution, S. C. Lawrence, Esq., of Medford (Mr. Keith, gardener); Mrs. M. S. Walker, of Waltham, and Miss Mary T. Goddard, of Newton.

Mr. Coles secured first prize for a specimen plant of an incurved variety, with Mabel Ward. Mr. Hatfield was first with A. G. Ramsay as a specimen Japanese kind, and a like honor was conferred on Mr. Coles' Savannah, a specimen Pompon. Yellow Ball, a fine plant of which was exhibited by Mr. Hatfield, is a good variety for decorative purposes. The plant was raised by H. A. Gane, of West Newton, and is of very distinct habit and well adapted for specimens, as it is so sturdy that it needs no stakes. It carries handsome flowers of deep orange, and is also excellent for cut flowers.

The greater part of the plants were arranged on the upper floor of Horticultural Hall, and the effect of the grouping could have been materially improved by the introduction of a few Palms, Ferns and other foliage-plants. The glare of color was too dazzling to please, and no arrangement of the plants, so stiff and formal as they usually are when grown for exhibition, can have a pleasing effect without the aid of some greenery as a foil to the color and some graceful foliage to relieve their harsher outlines.

A similar lack of toning material was even more evident in the lower hall, in which the cut blooms were regularly disposed in vases. The most beautiful object here was an immense vase filled with flowers of the finest quality, representing a large number of the choicest varieties, from Mr. J. Brydon, gardener to John Simpkins, Esq., of Yarmouthport. Messrs. Montgomery, of Waban, and E. A. Wood, of Newton, supplied an abundance of cut flowers, which carried off most of the best prizes. Messrs. Brydon, Galvin Brothers, of Boston; James Wheeler, gardener to Jos. H. White, Esq., of Brookline, and Laurence Cotter, gardener to C. V. Whitten, Esq., of Dorchester, were among the most successful competitors, and some excellent flowers, of the leading varieties, were exhibited by Mr. A. H. Fewkes, of Newton, and Mr. Hatfield, the latter's bloom of Etoile de Lyon being without a rival in the show. Mrs. Jerome Jones, as seen at this exhibition, is a very attractive variety, and it is likely to be one of our most popular Chrysanthemums.

Seedlings were quite numerous, and comparatively few of inferior quality now find their way to the exhibition tables. Mrs. F. L. Ames, a very large, partially reflexed flower, from Messrs. Pitcher & Manda, of Short Hills, New Jersey, was awarded first prize as the best yellow. Mr. Brydon's Snowflake, large pure white, with straight florets, was the best of its section, and it was honored accordingly. The best pink, Carrie Bell, of an exquisite tint, was contributed by Mr. J. Eaton, Jr., of New Bedford, and the best red, Oxblood, by Mr. G. B. Gill, of Medford. Clarence, a large orange-red, exhibited by Mr. Eaton, was the best of any other color in competition. A certificate was given to Mr. C. D. Kingman for Nemasket, a large and very perfect flower of pure white color, with a slight tinge of pink in the outer florets.

Some very promising unnamed varieties were exhibited by Mr. Hatfield and the Messrs. Pitcher & Manda, and there were a few exceptionally good named kinds in the New Jersey firm's lot, notably Miss Madge Clarke, deep pink; Mrs. Henry Graves, pale pink; Mrs. Leslie D. Ward, orange-yellow; Mrs. Walter Cutting, creamy white, tipped pink, and Mrs. W. P. Hinzay, bright red. Mrs. J. W. Crouch, exhibited by Messrs. E. G. Hill & Co., of Richmond, Indiana, is a good incurved flower of purplish color.

The principal miscellaneous exhibits were Carnations, Begonias and Strelitzia Reginæ, from various parties, Roses from the Waban conservatories, and a vase of the new Rose, Ameri-

can Belle—an excellent sport from American Beauty, with flowers of a lighter shade—from Mr. John Burton, of Chestnut Hill, Philadelphia. Mr. Burton's Rose was awarded a silver medal.

Chrysanthemums at Philadelphia.

THE autumn flower-show at the hall of the Pennsylvania Horticultural Society last week was universally pronounced one of the best ever held there, and was remarkable for fine plants, even at Philadelphia, while the cut blooms were very numerous and of good quality. The Japanese type prevailed to the exclusion of the Chinese and the Pompon, and but one specimen of the Anemone-flowered form was noted, a good yellow, Ada Strickland. Six flowers of this variety were conspicuous by their striking contrast with the rest of the exhibition. The first prize for the best vase of twelve white blooms was awarded to Ivory, which has held best place here for several years. The exhibitor was Fred. R. Sykes, gardener to Mrs. G. Dawson Coleman. Mrs. M. J. Thomas, shown by Pennock Bros., a cream-white, very large flowers, with broad, flat, waxy leaflets, took second premium. It was a matter of local pride that these varieties were both originated by Wm. K. Harris. The third premium was taken by Mrs. C. I. Thompson, grown by Thomas Monaghan. The new white, Mrs. Robert Craig, was exhibited by Robert Craig; it is much like Ivory, but smaller. For the best vase of twelve pink flowers David Cliffe took first premium with some excellent blooms of an unnamed seedling. Second premium and a certificate of merit were awarded to Miss Sue T. Price, a clear bright pink seedling of medium size and true Japanese form, exhibited by Robert G. Carey. Each petal of this variety stands out straight, making a well-formed globular flower. The color is pronounced even better than that of Mrs. J. N. Gerard. Maud Dean, grown by Robert Craig, received third prize. Hugh Graham received first prize for twelve yellow flowers with a vase of E. Hitzeroth and A. E. Weidener, good specimens of which were frequent in other classes. H. E. Weidener, exhibited by Robert Craig, received second premium, and twelve blooms of Eldorado, shown by Thomas Monaghan, took third prize. Among other notable yellows not in this class were the strikingly beautiful flowers of Lewis Childs' Madeira, or Golden Ball, and the new Mrs. John Gardiner, from Robert Craig, winner of the Gardiner cup. For the best vase of twelve flowers of any other color, Mars, exhibited by Hugh Graham, took first premium. Second premium in the same class to Mrs. A. J. Drexel, exhibited by Robert Craig, and third premium to Thomas Monaghan for Black Beauty, a large very deep crimson, a flower which was shown by Mr. Monaghan in very good form at New York, beside Goliath, another remarkable seedling of his.

The habit of stems and character of foliage were considered in all the cut exhibits, and all cut flowers were required to have stems not less than twelve inches long. Tall glasses and vases were used throughout, there being but one exhibit on an exhibition board, and this was a selection of twenty-eight remarkably fine flowers from Judge Benedict's place on Staten Island, Wm. Tricker, gardener. Hugh Graham received first prize for fifty-two blooms, one of a kind. The flowers were excellent, with long stems and generally well-known varieties. A notable white among them was Marguerite Graham. Hugh Graham also took first prize for a vase of fifty cut blooms with very long stems and good foliage. H. G. Standen was awarded first premium for twenty-five cut sprays in vases, one of a kind, and for twelve naturally grown sprays, twelve varieties. Rosstrevor, a seedling, shown by Hugh Graham, received a certificate of merit. The flowers are large, bronzy yellow, although they seemed dull beside Golden Wedding. This flower, which last week took three prizes in as many classes in New York, while a little past its best, was the sensation here as at Madison Square Garden. The deep golden color contrasted to great advantage with the lemon-yellow of E. Hitzeroth and A. E. Weidener. It was not entered for competition, but was declared by the judges to be the best yellow variety exhibited to the present time. A silver medal was awarded to Golden Wedding last year at Philadelphia.

A very notable large delicate pink new seedling, Pink Pearl, grown by John N. May, was one of the best Chrysanthemums at the exhibition, and is spoken of as the probable successor to Mrs. J. N. Gerard. It received a silver medal. Fascination, a creamy white, is another seedling of Mr. May's, and received a certificate of merit; Farview, a good amaranth, grown by Wm. Tricker, was also awarded a certificate of merit. Among other new seedlings in the cut-flower class was Leila, a large loose delicate pink, not a marked gain in color; Mars, grown by Hugh Graham, similar to Cullingfordi, but larger, though it does not appear to be as bright. It is well worth further trial. For Mrs. Craige Lippincott, Hugh Graham received a silver medal.

Among many seedling plants having points of merit George W. Childs Drexel, a good pink with long reflex-twisted florets, grown by Mr. James Verner, took the Blanc prize for the best seedling of 1892. Mrs. James W. Paul, Jr., a well-grown plant from Robert Craig, bore very large incurved pink flowers. A good amber-yellow, identified as No. 12, was grown by Wm. K. Harris. Another unnamed flower of a pleasing plum color, and John Goode, were also seedlings of Mr. Harris. John Goode is one of the best of the new flowers, a beautiful lively pink, maturing to a deep cream or delicate yellow at the centre, and of medium size.

Ten specimen plants grown by James Verner, gardener to A. J. Drexel, at "Runnymede," were marvels of cultivation in the number, size, and coloring of flowers. They were declared the best plants ever shown in Philadelphia, and included Puritan, Robert Bottomley, Miss Minnie Wheeler, Wm. H. Lincoln, Roselyn, Cullingfordi, Hicks Arnold, Frank Thompson, Mrs. Irving Clark and Mrs. A. J. Drexel. The last-named is the seedling shown for the first time in 1891, by Robert Craig. It is a deep rich crimson, of an unusual tone. Second prize for ten plants was awarded to J. Wm. Colflesh. John McCleary and W. K. Harris took prizes for similar collections.

A plant of Mrs. A. J. Drexel was awarded first prize as the best plant exhibited. A specimen of George W. Childs was almost equally fine, and its intensely bright crimson flowers, with golden reverse, were striking. W. H. Lincoln showed still among the best yellow-flowered kind, and there were remarkably good plants of Kioto, the new Mrs. Maria Simpson and Mrs. John G. Whilldin.

For the best three plants introduced to commerce during 1892 the Clothier prize was awarded to James Verner for Mrs. Robert Craig, H. F. Spaulding and Mrs. J. Eyermann. There were many classes and arrangements deserving special mention, as a double row of fine yellow plants of the best varieties in the front of the hall; a collection of six new varieties by W. K. Harris, and a large collection of hardy evergreens from Samuel C. Moon, Morrisville. On the stairway and in the halls on the upper floor evergreens and autumn leaves were tastefully arranged, and brought into relief against draperies of pink and white. The decoration of four tables was heavy and ungraceful.

A number of standards were shown, but no single-flowered specimens, and the collections of tropical foliage and flowering plants, which have been a feature of previous years, from Mr. George W. Childs, Mr. Henry F. Dreer, Mr. A. Blanc and Pitcher & Manda were greatly missed.

Of the six large decorative specimens sent by Miss M. L. Baldwin (Wm. Joyce, gardener) three received the first premium. Mr. Thomas Long, city gardener for Mr. Drexel, had twenty-five magnificent foliage-plants. His collection of twenty-five Ferns was unsurpassed, and every one was noteworthy. Robert Craig's group of glaucous Araucarias and Crotons and Mr. Charles D. Ball's commercial exhibit of foliage-plants were good, as they always are.

Of the Carnations, the large loose Lamborn, with its deep calyx, and Indiana still larger, were admirable whites, although Lizzie McGowan seemed altogether the best Carnation of this color which is grown near Philadelphia. Edna Craig seems to be holding a good place over Grace Wilder, being larger, with firmer stems and an admirable keeper. This variety took the first prize for a pink flower, while among the yellows Buttercup remained the best. Several new seedlings of promise were shown, and prizes, besides those noted, were taken by H. E. Chitty, Edwin Lonsdale, W. R. Shelmire and Griffin Bros.

A large beautifully arranged vase of the new Rose, American Belle, was shown by John Burton, of Chestnut Hill. It is a distinct gain in color, and its early habit makes it specially valuable. The clear pink of freshly cut flowers fades out a delicate pleasing shade instead of the undesirable blue or lilac which American Beauty takes on at that stage. It attracted as much attention as it did in New York.

Pennock Bros. and Joseph Kift & Son received prizes for the Meteor Rose, brought to this country some years ago through the gift of Mr. Henry Bennett to Charles F. Evans, and which at first was not grown with success. It promises to be a favorite here, as it already is with Mr. Pierson and other leading growers about New York. Mrs. W. C. Whitney, grown by John N. May, and similar in form and delicious fragrance to the once popular Francis W. Bennett, received first premium offered for the best six blooms of a new Rose. Other varieties, of which remarkably fine specimens were shown, were Madame

de Watteville, Sunset, Bridesmaid, Perle des Jardins, Madame Cusin and La France.

About $3,000 were distributed in prizes.

Notes.

According to the *Journal of Horticulture*, one of the most interesting of late introductions among Ferns is the variety Imbricatum of the true Maidenhair (Adiantum Capillis-Veneris). It is not only very hardy, but the writer ventures to call it a miniature A. Farleyense. It certainly will be a treasure if with hardiness it combines the airy grace of a Farleyense.

One of the brightest in flower of the new Cannas is Alphonse Bouvier, which was shown in admirable form by F. R. Pierson at the Madison Square Chrysanthemum show. The large flowers are so brilliant that even Madame Crozy looked dingy beside them. Sarah Hill was another variety of peculiar brilliant tint, while Capitaine P. de Zuzzoni is an admirable yellow.

The *Revue de l'Horticulture Belge* recommends the following mixture as being the best fertilizer for ornamental-leaved Begonias: Superphosphates, 33 parts; nitrate of potassium, 17 parts; nitrate of soda, 25 parts; sulphate of lime (gypsum), 25 parts. Pots which hold a litre (four-inch pots) require about two grammes, say 31 grains, of the mixture, and others in proportion.

A gigantic Camellia is growing near the royal castle at Pillnitz, near Dresden, Germany. The tree is twenty-four feet high, and produces annually at least 50,000 blossoms. It is supposed to have been imported from Japan about a century and a half ago. It is planted in the open ground, but every winter a structure of boards is built around it to keep out the severe cold of winter.

Mr. Wm. M. P. Bowen, a member of the national Committee upon the Improvement of Highways, has written a circular to citizens of Rhode Island in regard to the subject, in which he states that half a million dollars a year would hardly cover the annual loss and waste which the people of Rhode Island suffer from bad roads, and that this loss amounts to an annual tax of about two dollars upon every inhabitant of the state. If this tax were saved, in two or three years it would pay for putting all the main roads in Rhode Island in first-class condition.

The magnificent Sabal Blackburniana which has been for many years a feature of the Ghent Botanic Garden and was one of the finest Palms of its kind in Europe, has been cut down. Its height was fifty-five feet eight inches, its fronds more than six and a half feet across, with petioles nine feet long. It was destroyed because the old, dilapidated glass-house which covered it is to be replaced by a smaller and more strictly utilitarian building, and its destruction is pronounced an act of vandalism by the European horticultural journals.

The tallest trees in the world are found in the gulleys of Victoria, one of which is 471 feet high. Nearly every county in England has its favorite Oak, the largest of which is the Cowthorpe, of Yorkshire, which has a circumference of eighty feet. The Carnoch Ash, in Stirlingshire, is thirty-one feet in circumference. The Tortworth Chestnut, in Gloucestershire, was used to identify the boundary in the year 1135. It is said to have been the first tree that was ever planted in Great Britain by man. The largest Cedars in England are at Clumber; they measure twenty-seven feet in circumference. There is a Yew-tree at Crowhurst, in Sussex, thirty-three feet in circumference. The "Crawley Elm" is sixty-one feet in girth. The largest Beech-tree is to be found in Cornbury Park, Berkshire, and the largest Sycamore is at Cobham Park, with a circumference of twenty-six feet.

A new feature in the construction of greenhouses has recently appeared in Europe. Mr. Falconnier, an architect at Nyon, Switzerland, has invented a hollow brick, which is made of glass. These bricks are not only capable of being used in greenhouse construction, but there already exists a house in the park Tête d'Or, at Lyons, France, in which such bricks have been used in connection with iron for the arches of the frame-work. The bricks are used as ordinary bricks would be, and are fastened together either with lime, cement or plaster. They are translucent, and are blown in the same manner as glass bottles are, in order to make them hollow. They are 20 centimetres long, 14 centimetres wide and 115 millimetres thick (say 8 inches long, 5.5 inches wide and 4.5 inches thick), and sell for twenty-four francs a hundred; this price, however, could be much reduced in case of a growing demand for them.

In the course of a discussion which is going on in the English horticultural papers about stands for showing Chrysanthemum-blooms, the *Gardeners' Chronicle* prints an illustration of some Chrysanthemums exhibited on boards in Tasmania. The flowers looked just like the best ones in an English or an American exhibition, and they show, as the editor of the *Chronicle* remarks, how well flowers can be grown on the opposite side of the planet. He adds, however, that these people in the colonies would render a much greater service to horticulture by developing their native flowers than by slavishly imitating European customs; and Tasmanian flowers are singularly beautiful. This is a bit of advice which the world has taken a great time to learn. Many of the beautiful Japanese plants which have been sent to this country by Mr. Hogg were found growing wild and were neglected by the Japanese themselves, while their gardens were filled with plants from China and many other exotics brought there by Dutch traders.

For many reasons trees taken up late in autumn may be in better condition for setting out than such as have been removed earlier, and if they are heeled in by burying the roots and part of the stems they will be better prepared for setting out in spring. Their value next year will depend largely upon the treatment they now receive, and therefore these precautions, which are noted in the *Country Gentleman*, should always be observed. The ground selected should be dry, well drained and free from stones, so that the soil in contact with the trees can be finely pulverized. No stones, clods, sods or weeds should be used. Dig a pretty shallow trench, place the trees in an inclined position, and not massed so closely as to prevent the fine soil from penetrating every part and leaving no unfilled interstices. When they are well covered smooth the whole with a rounded surface, and if there is any danger from mice dig a flat trench around the whole ground occupied by the trees, so that they may be within and protected by an inclined bank of smooth earth, up the sides of which the mice will not undertake to ascend under the snow.

In the October number of the *Proceedings of the Royal Geographical Society*, of England, there is an interesting article on British Guiana by Mr. E. Im Thurm, who, for the past ten years, has been administrator of the north-western region of that country. This region, he says, falls naturally into two divisions—the upland savannahs, a dense belt of forest, which in some places is more than a hundred miles in breadth, and the low mangrove-swamps along the coast. The only method of communication is by water, the many rivers being connected by a very extensive network of narrow natural streams and artificial canals. In the forest-belt these water-ways are like verdurous tunnels, into which the sun never sends a direct ray, although they are enlivened by innumerable torches of bright color in the shape of epiphytal Orchids, immense butterflies and myriads of humming-birds. The Indians live much in the same way as they did before the days of Columbus, although their old local customs and habits now bid fair to disappear as the country is opened up in the search for gold. The extraordinary fertility of the soil is illustrated by the fact that in his own garden, which was drained and cleared hardly more than two years before he wrote, there already stand avenues of trees (Casuarina) forty feet high, which he then planted.

In some parts of the country this year where apples are very abundant they are shipped away by the car-load to be turned into cider. All sorts are used—winter apples and fall apples, ripe and unripe, large and small, sweet and sour—and all are mixed together and sold at the same price, as if one apple was as good as another for cider. In France, although it is the home of the vine, much more attention is given to cider-making than is done in this country, and the different varieties of apples are classed according to the abundance and quality of the juice they yield. Years ago certain kinds of apples were largely planted here on account of the quality of cider which they yielded, principal among these being the Harrison apple, a little, hard, green, late autumn fruit, which was very juicy and of a special acid flavor. These apples were mixed sometimes with the Campfields, which gave a rich, sweet juice. The *Gardeners' Chronicle* for the current week has classified from the *Herefordshire Pomona*, a list of apples which are considered the best for cider in England. One of these, called the Devonshire Royal Wilding, is said to produce cider which as long ago as 1753 brought five guineas a hogshead, when ordinary cider brought but twenty shillings. It is rather remarkable that although there are a few varieties in this country which are esteemed especially good as vintage fruits, very little prominence is given to this quality in general descriptions of apples, new or old.